



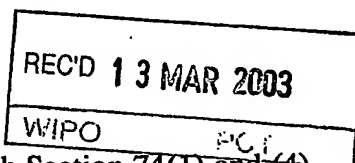
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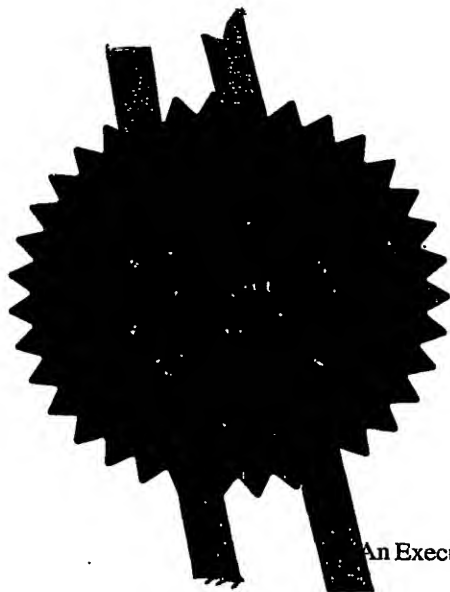


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Dated 5 February 2003

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1091002.3  
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2. Patent application number  
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0201002.3

17JAN02 E688608-1 D02903

P01/7700 0.00-0201002.3

17 JAN 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Reckitt Benckiser Inc  
1655 Valley Road  
Wayne  
New Jersey 07474  
United States of America

Patents ADP number (if you know it) 785 224 7001

If the applicant is a corporate body, give the country/state of its incorporation

Delaware

4. Title of the invention

Improvements in and Relating to Cleaning Implements

5. Name of your agent (if you have one)

John Crawford McKnight  
Reckitt Benckiser plc  
Group Patents Department  
Dansom Lane  
Hull  
HU8 7DS  
UNITED KINGDOM

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Patents ADP number (if you know it) 7799521001

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Country

Priority application number  
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Date of filing  
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Number of earlier application  
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Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

Yes

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
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Description

15

Claim(s)

3

Abstract

1

Drawing(s)

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Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Yes

Request for substantive examination (Patents Form 10/77)

Yes

Any other documents (please specify)

FS2

1.

I/We request the grant of a patent on the basis of this application.

Signature

Date

Andrew S Brown

10 January 2002

2. Name and daytime telephone number of Person to contact in the United Kingdom

John C McKnight (01482) 583719

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5      IMPROVEMENTS IN AND RELATING TO CLEANING IMPLEMENTS

The present invention relates to a substrate onto which is absorbed a cleaning agent with a scouring action for cleaning acid-resistant, hard surfaces in the household and especially for cleaning glass ceramics or vitrocera-  
10 mics surfaces, such as cook tops.

## BACKGROUND OF THE INVENTION

15      Cleaners for hard surfaces in the household are necessary, for example, for metals, glass, ceramics, synthetic materials, glass ceramics and the like. Such cleaners can be powdery, pasty or liquid. The liquid products have the advantage that, immediately after application to the  
20 surface to be cleaned, they manifest a cleaning ability, insofar as they are intended, for the removal of fat-containing and lime-containing dirt.

In all, known cleaning agents have the disadvantage that  
25 they do not satisfactorily clean or they damage the surfaces of, for example, glass ceramic cooking plates or, in the case of application to hot cooking plates, attack these chemically.

30      The typical vitrocera- mic surface requires several steps to clean a cook top. These steps include the following: scraping the excess soil off; applying a cleaning product to the soiled surface; spreading the cleaner and mechanically cleaning the surface with a paper towel or

5 other, wiping implement. After cleaning, a new paper towel  
or cleaning implement is needed to remove the excess  
cleaner and soil. Then, a new, clean, dry towel is needed  
to buff the surface to a shine. This invention eliminates  
the need for a separate cleaning product and several new  
10 towels.

The invention consist of a nonwoven wipe that is wet with a  
cleaning compound on one side while the other is dry, or  
one half of the wipe is wet with the cleaning compound  
15 while the other half is dry.

#### SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to  
20 provide a substrate onto which a predetermined amount of a  
glass ceramic, or vitroceramic, cleaner is absorbed. The  
substrate will have an area where no cleaner is absorbed,  
thus providing a separate area to dry and buff the glass  
ceramic surface.

25

The present invention provides for an article of  
manufacture comprising:

- A). a non-woven substrate; and
- 30 B) a composition comprising:
  - i) a surfactant selected from the group consisting  
of nonionic surfactants, anionic surfactants, and  
mixtures thereof;

- 5        ii) optionally, a scouring agent selected from the  
group consisting of oxides, carbonates, quartzes,  
siliceous chalk, diatomaceous earth, colloidal silicon  
dioxide, alkali metasilicates, organic abrasive  
materials selected from polyolefins, polyethylenes,  
10        polypropylenes, polyesters, polystyrenes,  
acetonitrile-butadiene-styrene resins, melamines,  
polycarbonates, phenolic resins, epoxies and  
polyurethanes, natural materials selected from rice  
hulls, corn cobs, and the like, nepheline syenite, or  
15        talc and mixtures thereof;  
iii) a thickener selected from the group consisting of  
cellulose, cellulose derivatives, bentonite clays,  
natural gums, hydrous silicates, and mixtures thereof;  
iv) optionally, an organic solvent;  
20        v) silicone; and  
vi) water;

wherein the composition of B) is impregnated on a portion  
of substrate A) and the impregnated portion of substrate A)  
is separated from a non-impregnated portion of substrate A)  
25 by a barrier, wherein the substrate A) or a portion thereof  
is optionally abrasive or contains imbedded abrasive  
particles.

Preferably, the scouring agent is a mixture of oxides and  
30 carbonates. In addition, a mixture of nonionic and anionic  
surfactants are preferred.

A predetermined amount of the above composition can be  
placed on a substrate, for example, a non-woven wipe, such

5 that a predetermined area of the substrate does not contain  
the composition. This area is then available for drying  
and buffing the glass ceramic surface. In one variation,  
one-half of the front side of the substrate can contain the  
composition and the other half of the front side would not  
10 contain the composition. Another variation would have the  
front side of the substrate contain the composition and the  
back side would not contain the composition. In these and  
other variations, there are barriers to prevent migration  
of the composition to those areas of the substrate which  
15 are to be free of composition.

The substrate can be smooth or abrasive or can contain  
abrasive particles imbedded within. If the substrate is  
abrasive or contains abrasive particles imbedded within,  
20 then the composition may or may not contain a scouring  
agent.

Other objects, features and advantages of the present  
invention will become apparent to those skilled in the art  
25 from the following detailed description. It should be  
understood, however, that the detailed description and  
specific examples, while indicating preferred embodiments  
of the present invention, are given by way of illustration  
and not limitation. Many changes and modifications within  
30 the scope of the present invention may be made without  
departing from the spirit thereof, and the invention  
includes all such modifications.

5

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG 1, shows a cross-section of a substrate wherein one side of the substrate has been impregnated with an inventive composition and the other side has not.

10

FIG 2 shows a schematic wherein a portion of a substrate has been impregnated with an inventive composition and the remaining portion has not.

15

## DETAILED DESCRIPTION OF THE INVENTION

The present invention provides for an article of manufacture comprising:

20

A) a non-woven substrate; and

B) a composition comprising:

i) a surfactant selected from the group consisting of nonionic surfactants, anionic surfactants, and mixtures thereof;

25

ii) optionally, a scouring agent selected from the group consisting of oxides, carbonates, quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates, organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes, natural materials selected from rice

30



- 5 hulls, corn cobs, and the like, nepheline syenite, or  
talc and mixtures thereof;
- iii) a thickener selected from the group consisting of  
cellulose, cellulose derivatives, bentonite clays,  
natural gums, hydrous silicates, and mixtures thereof;
- 10 iv) optionally, an organic solvent;
- v) silicone; and
- vi) water;

wherein the composition of B) is impregnated on a portion  
of substrate A) and the impregnated portion of substrate A)  
15 is separated from a non-impregnated portion of substrate A)  
by a barrier, wherein the substrate A) or a portion thereof  
is optionally abrasive or contains imbedded abrasive  
particles.

20 The substrate can be smooth or abrasive or can contain  
abrasive particles imbedded within. If the substrate is  
abrasive or contains abrasive particles imbedded within,  
then the composition may or may not contain a scouring  
agent.

25 Preferably, the scouring agent is a mixture of oxides and  
carbonates. In addition, a mixture of nonionic and anionic  
surfactants are preferred.

30 A predetermined amount of the above composition can be  
placed on a substrate, for example, a non-woven wipe, such  
that a predetermined area of the substrate does not contain  
the composition. This area is then available for drying  
and buffing the glass ceramic surface. In one variation,

5 one-half of the front side of the substrate can contain the composition and the other half of the front side would not contain the composition. Another variation would have the front side of the substrate contain the composition and the back side would not contain the composition. In these and  
10 other variations, there are barriers to prevent migration of the composition to those areas of the substrate which are to be free of composition. The barriers can include thin strips of polymer to separate the halves of the sheets, if the composition is placed on one-half of the  
15 front of the substrate as well as an impermeable layer between the substrate so as to prevent the composition from passing from the front of the substrate, where absorbed, to the back, which is used to dry and buff the surface.

20 The composition according to the invention contains, as an essential ingredient, one or more surfactants selected from anionic surfactants, nonionic surfactants and mixtures thereof. Such surfactants are well known and described in the literature, for example, in "Surface-Active Agents and  
25 Detergents", Volumes I and II by Schwartz, Perry and Berch as well as in McCutcheon's, Detergents and Emulsifiers, North American edition (2001), published by The Manufacturing Confectioner Publishing Co.; McCutcheon's, Functional Materials, North American Edition (2001), both  
30 of which are incorporated by reference herein.

Examples of suitable anionic surfactants include  $C_{12}$  -  $C_{18}$  primary alkyl sulfates; alkylbenzene sulfonates having an alkyl chain length of  $C_8$  -  $C_{15}$ ; olefin sulfonates; alkyl

5 xylene sulfonates; dialkyl sulfosuccinates; and fatty acid ester sulfonates. Sodium salts are generally preferred.

Examples of suitable nonionic surfactants include alkoxyated adducts of fatty alcohols containing an average  
10 of from 3 to 10 alkylene oxide groups per molecule with the alkyl chain of the fatty alcohol having 6 to 14 carbon atoms. A particularly preferred aliphatic alcohol ethoxylate is a primary alcohol having an average of from 9  
15 to 11 carbon atoms in the alkyl chain condensed with an average of from five to seven ethoxy groups per mole of alcohol.

The present invention also comprises a scouring material selected from the group consisting of oxides (for example,  
20 calcined aluminum oxides and the like), carbonates (for example, calcium carbonate and the like), quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates (for example, sodium metasilicate and the like), organic abrasive materials  
25 selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes; natural materials such as, for example, rice hulls, corn cobs, and the like, or talc and mixtures  
30 thereof. The particle size of the scouring agent can range from about 1  $\mu\text{m}$  to about 1000  $\mu\text{m}$ , preferably between about 10  $\mu\text{m}$  to about 200  $\mu\text{m}$ , and more preferably between about 10  $\mu\text{m}$  and about 100  $\mu\text{m}$ . It is preferred to use those scouring agents that will not scratch glass ceramic surfaces. Such

- 5 scouring agents include calcium carbonate, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, sodium metasilicate, talc, and organic abrasive materials. Calcium carbonate is preferred.
- 10 These agents provide an abrasiveness to the composition, if needed (not generally needed if the substrate contains abrasive particles imbedded therein) so as to assist in cleaning the glass ceramic top.
- 15 The present invention also comprises a thickener which assists not only by helping to suspend the scouring agents, but also in allowing the composition to flow appropriately on the substrate as well as holding moisture in the intended area of the substrate. In addition, if the
- 20 composition is used without a substrate, then the thickener assists in suspending the scouring agent in the bottle as well as permitting appropriate flow of the composition when dispensed. Examples of thickeners include cellulose, cellulose derivatives, bentonite clays, natural gums,
- 25 hydrous silicates, and mixtures thereof. Mixtures of natural gums, for example, alginates, guar, xanthan, and hydrous silicates are preferred.
- An organic solvent is optional for the present invention.
- 30 When present, it is generally a lower alkanol, for example, isopropanol and the like with alcohols having about 1 to 6 carbon atoms.

5

Silicone is also present in the present invention. Preferably, they are polydimethylsiloxanes or medium viscosity (from about 1,000 to about 100,000 centistokes with about 10,000 to 25,000 centistokes being preferred).

10

Water is added to the above components in order to provide 100% by weight of the composition. The water may be tap water, but is preferably distilled and is most preferably deionized water. If the water is tap water, it is preferably substantially free of any undesirable impurities such as organics or inorganics, especially minerals salts which are present in hard water which may thus interfere with the operation of the above components as well as any other optional components that may be present.

20

Optional components include perfume, dyes and colorants, additional surfactants, pH buffers, and the like with the appreciation that any of the optional components selected will not interfere with the operation and use of the composition of the present invention.

25

Another component of the present invention is a substrate onto which the composition of the present invention is absorbed. The substrate is preferably a non-woven material and can be made from any absorbable fiber, for example, rayon, polyester, cellulose, etc. Such substrates are available from several sources, for example, BBA Nonwovens and Alhstrom. In some instances, abrasive materials can be incorporated into one surface of the wipe and then the

30

5 inventive composition is then absorbed on that surface of the wipe. When an abrasive material is incorporated within the wipe, then no abrasive need be incorporated within the composition. Preferably, the substrate does not contain an abrasive and the composition contains an abrasive.

10

As discussed above, only a portion of the substrate, whether a portion of a first side being absorbed with the inventive composition and the remaining portion of the first side being without absorbed composition or the front  
15 side of the substrate being absorbed with the inventive composition and the back side not absorbed with the composition. In the first instance, there will be a small heat sealable strip across the surface of the substrate to prevent migration from the side containing the absorbed  
20 composition to the side that does not have absorbed composition. This can be accomplished by having heat sealable materials, for example, polypropylene or polyester fibers, within the substrate so that when a heat source is applied to a designated area of the substrate, an  
25 impermeable barrier is formed. Another way of accomplishing this is by placing a thin layer of a resin (for example, latex, epoxy, and the like) on the substrate to form a designated area where the composition is to be placed. The resin, when cured, forms an impermeable  
30 barrier. In the second instance, there is an inner layer (for example an impermeable polymer sheet and the like) within the substrate to as to prevent migration of the absorbed composition on the front side of the substrate to the back side of the substrate.



Hostapur SAS 30	2	2	2	2	2	2	2	2	2
Dantogard	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Perfume	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Laponite RD	0	1	0	1	0	0	1	1	1
Rhodopol 50-MD	0.3	0.5	0.5	0.3	0.5	0.3	0.5	0.3	0.425
IPA	0	0	4	4	0	4	4	0	4
Rhodorsil 47V 12,500	1.5	0.05	1.5	0.05	0.05	0.05	1.5	1.5	1.5
Martipol PN-505 <sup>10</sup>									7.5

5

<sup>1</sup> Calcium carbonate<sup>2</sup> C<sub>9-11</sub>alcohol ethoxylate, 6 mol EO<sup>3</sup> Sodium C14-17 sulfonate (30% active)<sup>4</sup> 1,3-Bis(hydroxymethyl)-5,5-dimethylhydantoin

10 (preservative)

<sup>5</sup> Perfume (proprietary)<sup>6</sup> Hydrous sodium lithium magnesium silicate<sup>7</sup> Xanthan gum<sup>8</sup> Isopropanol15 <sup>9</sup> Dimethylpolysiloxane fluid, 12500 centostokes<sup>10</sup> Calcined aluminum oxide

To prepare the article for use, about 3 to about 15 grams,  
preferably about 5 to about 9, more preferably about 6 to  
20 about 8 grams of composition are impregnated onto  
approximately 120cm<sup>2</sup> of substrate and then cut to size.

For an article where one side of the substrate is coated  
with the composition and the other is not, in referring to



5 FIG 1, therein the article 1 comprises top layer 3, which does not have composition impregnated therein, bottom layer 2, which does have composition impregnated therein, and barrier 4, which prevents the migration of the composition from layer 2 to layer 3.

10

Where a portion of the substrate is impregnated with the composition and the remaining portion is not (for example, the depiction in FIG 2), immediately before or after impregnating section 11, a barrier 13, which can be a curable resin or formed by applying a heat source to a small part of the substrate, is applied to prevent migration of the composition to section 12. As shown in FIG 2, the composition may be placed down in stripes or the entire section 11 can be impregnated with the composition.

20

In use, whether a section of the substrate is impregnated (as schematically shown in FIG 2) or one side of the substrate is impregnated (cross-sectionally shown in FIG 1), the user takes the article with the impregnated side towards the glass ceramic surface to be cleaned and cleans with that portion of the article. Thereafter, in the first instance section 11 is folded onto section 12 by bending along barrier 13 and the backside of section 12 is then used to dry and buff thus cleaned glass ceramic surface.

25

30 In the second instance, the bottom layer 2 of article 1 is folded upon itself and the remaining layer 3 is then used to dry and buff the thus cleaned glass ceramic surface.

- 5 Examples of a cleaning agent according to the present invention were tested. Testing of a cleaning agent of the present invention for scratching showed no negative effects. The cleaning ability of a cleaning agent according to the present invention was comparably good.

5

We claim:

1. An article of manufacture comprising:

10 A) a non-woven substrate; and

B) a composition comprising:

i) a surfactant selected from the group consisting of nonionic surfactants, anionic surfactants, and mixtures thereof;

15 ii) optionally, a scouring agent selected from the group consisting of oxides, carbonates, quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates, organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes, natural materials selected from rice hulls, corn cobs, and the like, nepheline syenite, or talc and mixtures thereof;

25 iii) a thickener selected from the group consisting of cellulose, cellulose derivatives, bentonite clays, natural gums, hydrous silicates, and mixtures thereof;

iv) optionally, an organic solvent;

30 v) silicone; and

vi) water;

wherein the composition of B) is impregnated on a portion of substrate A) and the impregnated portion of substrate A) is separated from a non-impregnated portion of substrate A)

5 by a barrier, wherein the substrate A) or a portion thereof is optionally abrasive or contains imbedded abrasive particles.

2. The article of manufacture of claim 1 wherein  
10 surfactant B) i) is a mixture of anionic surfactants and nonionic surfactants.

3. The article of manufacture of claim 2 wherein anionic surfactant is a sulfonate.

15 4. The article of manufacture of claim 3 wherein nonionic surfactant is an alcohol ethoxylate.

5. The article of manufacture of claim 1 wherein  
20 thickener B) iii) is a mixture of natural gums and silicates.

6. The article of manufacture of claim 5 wherein natural gum is xanthan gum.

25 7. The article of manufacture of claim 1 wherein scouring agent B) ii) is present.

8. The article of manufacture of claim 7, wherein  
30 scouring agent is selected from calcium carbonate, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, sodium metasilicate, and organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-

5 butadiene-styrene resins, melamines, polycarbonates,  
phenolic resins, epoxies and polyurethanes, or talc and  
mixtures thereof.

9. The article of manufacture of claim 1, wherein organic  
10 solvent B) iv) is present

10. The article of manufacture of claim 1 wherein  
substrate A) comprises at least three layers wherein one  
layer acts as the barrier between the impregnated portion  
15 and the non-impregnated portion.

## ABSTRACT

## IMPROVEMENTS IN AND RELATING TO CLEANING IMPLEMENTS

10 Disclosed herein is an article of manufacture of a  
substrate onto which a cleaning composition is partially  
impregnated, leaving a portion of the substrate not  
impregnated with the composition. The impregnated side of  
the substrate is used to clean surfaces, for example, glass  
15 ceramic stove tops, and the unimpregnated side is then used  
to dry and buff the thus cleaned surface.

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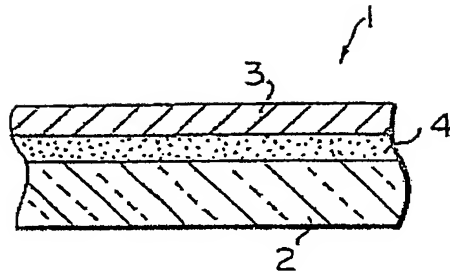


FIG 1

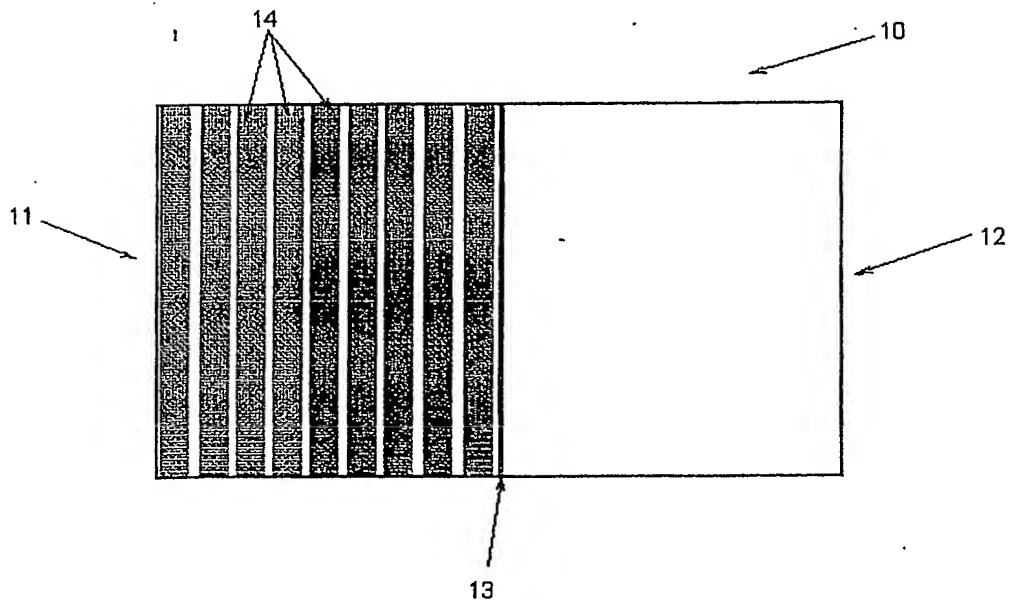


FIG 2